# Introduction to Python Exercises 02
# Loops sample answers

Remember that you can come out with a different way to solve the exercises, these are just potential answers to give you a reference.

While you are getting acquainted with programming and Python as a language your objective is to produce a suitable RESULT. In the future you may find more Pythonic ways of solving the problems.

1) Write a program that prints the numbers from 1 to 20 (using a for loop)

```
for var in range(1,21):
    print(var, end=' ')
```

2) Write a program that prints the numbers from 10 to 32 in increments of 2

```
for var in range(10,32, 2):
    print(var, end=' ')
```

3) Write a program that prints numbers from 100 to 85 in decreasing order.

```
for var in range(100,84, -1):
    print(var, end=' ')
```

4) Write a program that asks the user for a number and then prints out a list of all the divisors of that number. (a divisor is a number that divides evenly into another number. For example, 13 is a divisor of 26 because 26 / 13 has no remainder.)

```
number = int(input("Enter an integer: "))

print('The divisors of ', number,  'are')

for i in range(number,  0, -1):
    if (number % i == 0):
        print(i)
```

5) Write a program that prompts for a string and then prints how many letters are there in the string, followed by all the letters in the string (one letter per line)

```
MyString = input("Please enter a string: ")

print ("The string contains", len(MyString), "letters: ")

for i in MyString:
    print(i)
```

6) Write a program that asks for a string and then prints it backwards. There is a shortcut way to this in python, but do it anyway it comes to your mind at this point.

```
# Sample #1 a more traditional way. It is shown here as a teaching example
of the use of loops (But there are other ways of doing this in Python)

var = input ("Please enter a string: ")

count = len(var)-1

for i in var:
    print(var[count], end='')
    count -= 1
```

```
# reversing a string in Python is usually done this way. So remember this
little trick. It uses a special form of slicing.

var = input ("Please enter a string: ")

print(var[::-1])
```

7) Write a program that prompts for a string and displays the lowercase vowels found in the string as well as how many were found. Remember there are many ways of arriving at the desired result. As you advance in your knowledge of python, you will discover new ways of doing things.

```
count_vowels = 0

letters = "aeiou"

for v in letters:
    vowels = MyString.count(v)

    if vowels !=0:
        count_vowels += vowels
        print (v, "is found in",  MyString, MyString.count(v), 'times')

print (“There are”, count_vowels, “in”, MyString)
```

8) Prompt the user for a string and print out whether this string is a palindrome or not. (A palindrome is a string that reads the same forwards and backwards.)

```
#simple solution (case sensitive)

word = input("Enter a word: ")

if word == word[::-1]:
      print("The word: " + word  + " is a Palindrome")
else:
      print("The word: " + word  + " is not a Palindrome")
```

9) Write a program that prompts the user for a number of lines and then prints the following pattern depending on the number of lines prompted. (Example, the user enters 5)

```
rows = int(input("Enter a number of rows: "))

for x in range(1, rows+1):
    print("*" * x)
```

10) Write a small menu with 4 items. Print a message letting the user know his selected choice.

1. Welcome to Python
2. Python is Fun
3. This could be a challenge
4. Exit

Every time the users select a choice (1 to 3) we print a message and then we print the menu again and wait for another choice to be entered. Once the user enters 4, the program ends.

Example #1 (Using a condition in the while loop)

```
optionSelect = 0

while optionSelect != 4:
    print()
    print("*---- My Menu ----*")
    print("1. Welcome to Python")
    print("2. Python is Fun")
    print("3. This could be a challenge")
    print("4. Exit")
    print()

    optionSelect = int(input("Enter your choice: (1,2,3,4) "))

    if optionSelect == 1:
        print ("You selected Welcome to Python")
    elif optionSelect == 2:
        print("You selected Python is Fun")
    elif optionSelect == 3:
        print("You selected This could be a challenge")
```

Example #2 (Using a break statement and an infinite Loop)

```
while True:
    print()
    print("*---- My Menu ----*")
    print("1. Welcome to Python")
    print("2. Python is Fun")
    print("3. This could be a challenge")
    print("4. Exit")
    print()

    optionSelect = int(input("Enter your choice: (1,2,3,4) "))

    if optionSelect == 1:
        print ("You selected Welcome to Python")
    elif optionSelect == 2:
        print("You selected Python is Fun")
    elif optionSelect == 3:
         print("You selected This could be a challenge")
    elif optionSelect == 4:
         break)
```